No. 741,573. PATENTED OCT. 13, 1903.

E. H. BALLOU.

ALARM SYSTEM.

APPLICATION FILED AUG. 13, 1901.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

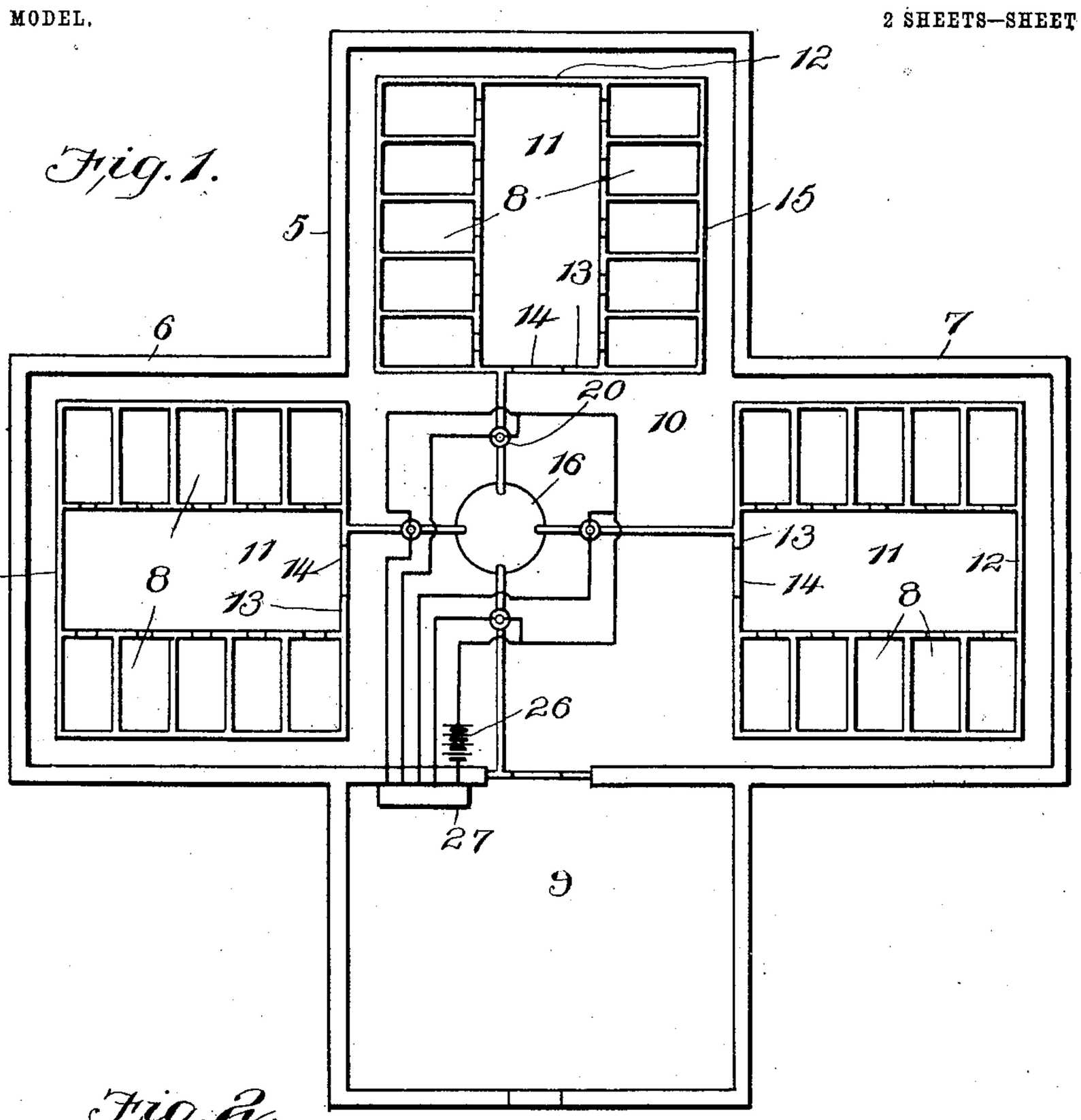


Fig. 2.

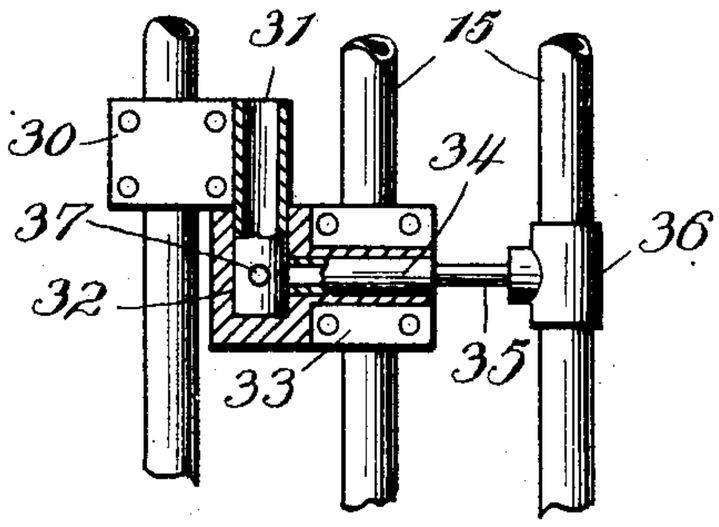
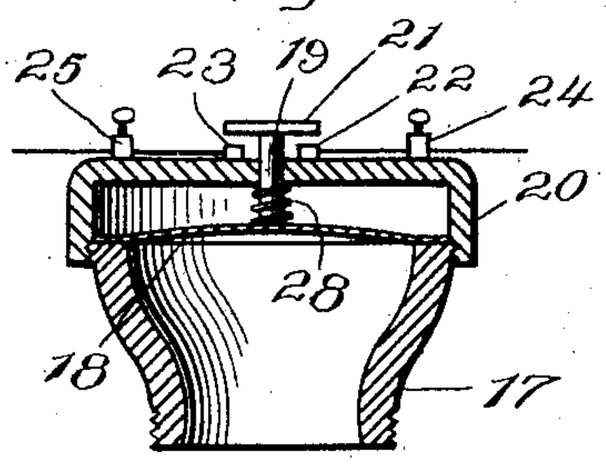


Fig. 3.



Witnesses

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NO MODEL. 2 SHEETS—SHEET 2.

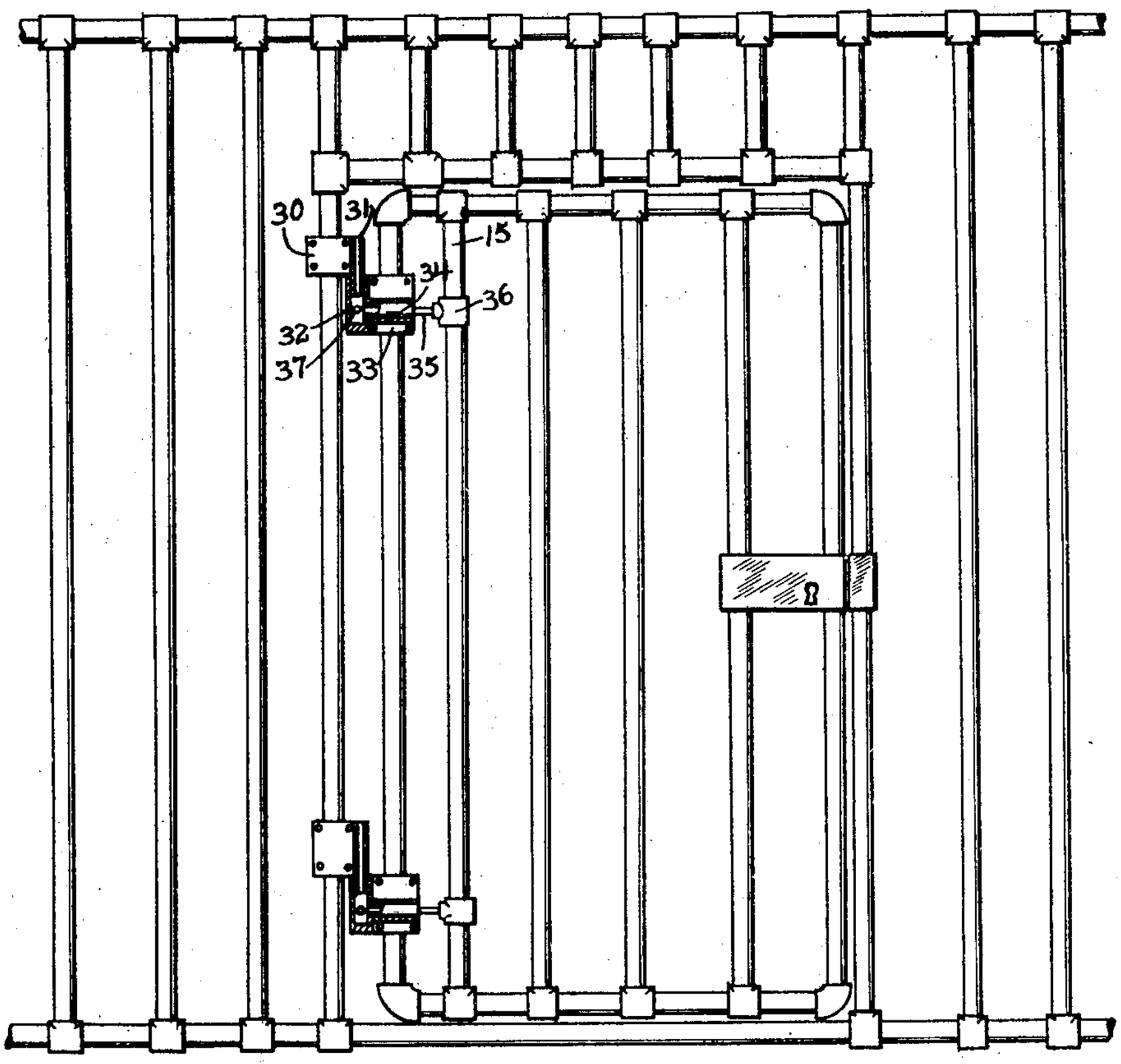

Fig. 4.

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No. 741,573. Patented October 13, 1903.

UNITED STATES PATENT OFFICE.

ERNEST H. BALLOU, OF BINGHAMTON, NEW YORK, ASSIGNOR OF ONE-HALF TO ERNEST H. BEARD, OF ACADEMY, WEST VIRGINIA.

ALARM SYSTEM.

SPECIFICATION forming part of Letters Patent No. 741,573, dated October 13, 1903.

Application filed August 13, 1901. Serial No. 71,927. (No model.)

To all whom it may concern:

Be it known that I, ERNEST H. BALLOU, a citizen of the United States, residing at Binghamton, in the county of Broome, State of New York, have invented certain new and useful Improvements in Alarm Systems; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to alarm systems, and particularly to that class employed in connection with jails or safe-deposits for giving an alarm when entrance thereto or egress therefrom is forced.

The object of the invention is to provide such an arrangement that if the bar of the grating is cut or broken or a door is opened notice of that fact will be given by the sounding of an alarm and the general location of the break will be indicated.

Further objects and advantages of the invention will be understood from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is diagram showing the cells in a jail equipped in accordance with this invention. Fig. 2 is a detail view, partly in section and partly in elevation and showing a portion of a cell with the tubular bars and with the door-hinges. Fig. 3 is a detail sectional view showing the circuit-closure. Fig. 4 is an elevation showing a portion of the front of a cell having a door equipped with hinges embodying the present invention.

Referring now to the drawings, there is shown in the diagram a jail which includes the three wings 5, 6, and 7, in each of which is located a series of cells 8, in the front portion of the building being the office 9, while in the central portion is the usual open corridor 10. In each wing are two lines of cells, which are separated by a corridor 11, the ends of which are closed by the gratings 12 and 13, the grating 13 having a door 14 for entrance to the corridor 11. In the present instance there is a passage-way around the whole number of cells in each wing. The bars 12 and 13 are tubular, and each of the cells has its bars 15 also tubular, all of the bars of the cells and corridor of each wing being connected in series and having connection with a reservoir 16, which may be located beneath corridor 10 or any other suitable place, so that the series of bars may be supplied with air under pressure. With this arrangement if any one of the bars is cut or broken, as in the attempt of a prisoner to escape, there will be a drop in pressure in the pipe connecting such bar with its reservoir. To give warning when this drop occurs, an alarm mechanism is provided and consists of a head 17, which is connected to the pipe leading from the tubular bars to the reservoir, and this head is provided with a diaphragm 18, carrying a stud 19, which latter is passed through an opening in a cap 20 of the head and has a transverse contact-strip 21 for engagement with the contact-points 22 and 23 upon the cap. The points 22 and 23 are electrically connected with binding-posts 24 and 25, which are connected in the circuit of a battery 26, which circuit also includes one point of the enunciator 27. When the air in the tubular bars is under pressure, the diaphragm 18 is pressed upwardly and raises the stud 19, with the strip 21, out of engagement with contacts 22 and 23 and holds it in this position, so that the battery-circuit is open. When the bar is broken or cut, so that the pressure drops, the diaphragm is forced downwardly through the medium of a helical spring 28, disposed between it and the cap 20 and encircling the stud 19, and the strip 21 is brought into contact with the points 22 and 23 to close the battery-circuit. This circuit includes a bell, as is usual, and the enunciator indicates in which wing the break has occurred.

In a system of this kind it is also important that an alarm be given if a door is opened, and for this purpose the door of each cell and the door of each corridor are provided with a special hinge. (Shown in Fig. 2 of the drawings.) This hinge comprises a leaf 30, having a tubular pintle 31, which is disposed in the socket 32 of the leaf 33, said pintle at its upper end communicating with the atmosphere. The leaf 30 is attached to the door, while the leaf 33 is secured to one of the bars at the side of the diaphragm. Leading to the

socket 32 is a tube 34, which is connected by a nipple 35 with a T connection 36, which is incorporated in the tubing of the grating. The tube 34 opens into the socket 32, and when the door is closed the pintle 31, which fits the socket closely, closes the tube 34 and prevents escape of air therefrom. The pintle 31 has an opening 37 so positioned that when the door is opened this opening registers with the tube 34 to permit escape of air through the pintle; thus allowing the pressure to drop and the alarm to be sounded. It will thus be seen that escape cannot be made either by opening the door or by cutting or breaking the bar without notification thereof being given.

It will be understood that in practice modifications of the specific construction shown may be made and that the invention may be applied to safe-deposits, vaults, and other places from which people are to be excluded.

What is claimed is—

1. The combination with an inclosure consisting of tubular bars connected in series, and a door, of a hinge including a leaf attached to the door and having a downwardly-directed hollow pintle communicating with the atmosphere provided with a lateral port, a second leaf attached to a bar of the inclosure and having a socket in which the pintle is rotatably received, said socket having a port disposed for registration with the port of the pintle when the door is opened, a pipe leading from the port of the socket to a bar of the inclosure, an air-supply connected with the bars of the inclosure for supplying air thereto under pressure, an alarm, a pneumatic circuit-closer connected between the air-supply and the inclosure, and a battery in circuit with the alarm and the circuit-closer.

2. The combination with an inclosure comprising tubular bars, of a door, a hinge connecting the door and a bar of the inclosure, and means for supplying air under pressure to the tubular bars, said hinge including a valve constructed and arranged to vent the tubular bars when the door is opened.

In testimony whereof I affix my signature in presence of two witnesses.

ERNEST H. BALLOU.

Witnesses:

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